

CASE REPORT

Solitary distant peritoneal metastasis of cecal cancer after laparoscopic colectomy : a case report

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Abstract : A 77-year-old Japanese female underwent laparoscopic ileocecal resection and lymph node dissection for cecal cancer by a previous doctor. Two years and 9 months after previous operation, contrast-enhanced computed tomography and magnetic resonance imaging with gadolinium ethoxybenzyl-L-diethylenetriamine pentaacetic acid revealed an intraperitoneal tumor at the right subphrenic fossa. 18F-fluorodeoxyglucose position emission tomography showed fluorodeoxyglucose accumulation in the tumor, and we suspected the tumor to be solitary distant peritoneal metastasis of the previous cecal cancer to the right diaphragm. We performed partial diaphragmectomy and direct closure, and pathological examination revealed moderately differentiated tubular adenocarcinoma resembling the previous cecal cancer, which seemed to be disseminated metastasis in the pathological features. Based on the intraoperative findings, we assumed the tumor to be solitary distant peritoneal metastasis caused by procedures during the previous laparoscopic operation. The present report suggests the importance of paying close attention to procedures during laparoscopic colorectal resection to prevent peritoneal seeding. *J. Med. Invest.* 64 : 288-290, August, 2017

Keywords : peritoneal metastasis, colon cancer, laparoscopic surgery

INTRODUCTION

Laparoscopic colorectal resection, which is less invasive than open colorectal resection, has been increasingly used for colorectal cancer over the last two decades. Several large randomized controlled trials have reported the superiority in terms of short-term outcomes, including earlier recovery of bowel function and shorter hospital stay to open colorectal resection (1-4). These trials have also reported the equivalence in terms of long-term outcomes, including disease-free survival and overall survival to open colorectal resection (5-7) ; however, several recurrence patterns peculiar to laparoscopic colorectal resection, such as port site recurrence and peritoneal seeding, are an issue in these days (8). Both port site recurrence and peritoneal seeding are related to careless surgical procedures. We have to pay close attention to our procedures during laparoscopic surgery.

We report a case of solitary distant peritoneal metastasis of cecal cancer after laparoscopic colectomy. This peritoneal metastasis seemed to be caused by surgical procedures. The present case report highlights the importance of paying close attention to surgical procedure in laparoscopic surgery to prevent peritoneal seeding.

CASE PRESENTATION

A 77-year-old Japanese female underwent laparoscopic ileocecal resection and lymph node dissection for cecal cancer by a previous doctor. Pathological examination revealed moderately differentiated tubular adenocarcinoma with positive lymph and blood vessel

invasion and serosal invasion. Lymph node metastases were seen in two of the seven dissected lymph nodes. Her pathologic stage was T4aN1bM0 stage IIIB according to the TNM Classification of Malignant Tumors 7th Edition. She had undergone adjuvant chemotherapy with oral capecitabine for 6 months. Two years and 9 months after the previous operation, contrast-enhanced computed tomography (CECT) during a routine examination revealed an intraperitoneal tumor at the right subphrenic fossa ; therefore, she presented to our hospital for the treatment of the tumor.

There were no remarkable findings during the physical examination. Blood biochemistry showed elevation of carcinoembryonic antigen (6.2 ng/mL) and carbohydrate antigen 19-9 (104.4 U/mL) levels. CECT showed an intraperitoneal tumor with poor contrast enhancement at the right subphrenic tumor. We performed magnetic resonance imaging with gadolinium ethoxybenzyl-L-diethylenetriamine pentaacetic acid (EOB-MRI) in addition, and EOB-MRI also showed the right subphrenic tumor, which seemed to be located on the right diaphragm and not invasive into the liver. (Figure 1). We also performed 18F-fluorodeoxyglucose position emission tomography (FDG-PET) for a qualitative diagnosis, and FDG-PET showed fluorodeoxyglucose accumulation in the right subphrenic tumor (Figure 2). There was no evidence of further peritoneal metastasis or another distant metastasis on a previous series of examinations ; therefore, we considered the tumor to be suspicious of solitary distant peritoneal metastasis of the previous cecal cancer. We expected the tumor to be curatively resectable and performed operation.

During the operation, the tumor was located on the right diaphragm close to the inferior vena cava and right hepatic vein (Figure 3). The tumor was not invasive into the liver as was preoperatively diagnosed. There was no further peritoneal metastasis or another distant metastasis. We performed radical partial diaphragmectomy and direct closure. The operation time was 1 h 22 min, and blood loss was 10 g. A resected specimen contained a white hard tumor, 2.0×1.5 cm in diameter. Pathological examination revealed moderately differentiated tubular adenocarcinoma

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resembling the previous cecal cancer, which seemed to be disseminated metastasis in the pathological features (Figure 4). Based on the intraoperative findings, we assumed the tumor to be solitary distant peritoneal metastasis caused by procedures during the previous laparoscopic operation. She showed satisfactory progress, and was discharged from the hospital on postoperative day 9. We did not perform adjuvant therapy after this operation because of a lack of relevant evidence to support the use of adjuvant chemotherapy for Stage IV colon cancer patients. She had remained well without any signs of recurrence at the 1-year follow-up.

DISCUSSION

Several large randomized controlled trials have reported the superiority of laparoscopic colorectal resection in terms of short-term outcomes and the noninferiority in terms of long-term outcomes (1-7); however, JCOG0404 study performed in Japan could not

reveal the noninferiority of laparoscopic colorectal resection. This study reported the tendency of poor prognosis of laparoscopic colorectal resection in advanced subgroups of cT4 or cN2 (9). One of the reasons of this poor prognosis is considered to be peritoneal seeding by surgical procedures (8). It is unclear whether peritoneal seeding actually affect long-term outcomes in patients with colorectal cancer. But we cannot entirely ignore this new type of recurrence peculiar to laparoscopic colorectal resection.

Peritoneal metastasis generally occurs in patients with colorectal cancer naturally accompanied by serosal invasion; however, cancer cells from the primary tumor are sometimes seeded by surgical procedures even in either open or laparoscopic colorectal resection. More advanced techniques are required to perform oncologically safe procedures in laparoscopic colorectal resection than in open colorectal resection. Inexperienced surgeons in laparoscopic colorectal resection sometimes injure the tumor incidentally, resulting in seeding of cancer cells. In the present case, the tumor was not hematogenous or lymphogenous, but disseminated metastasis.

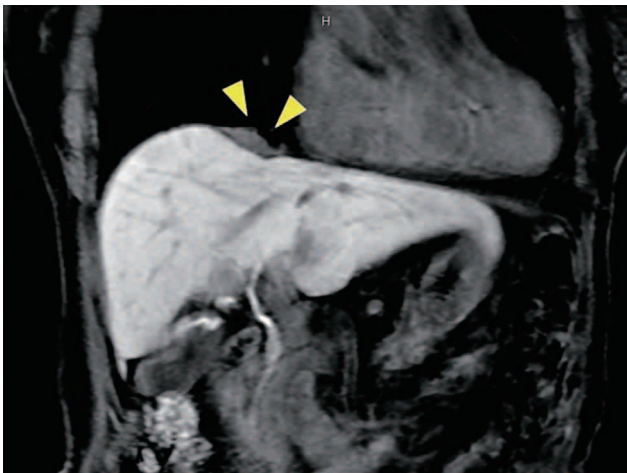


Figure 1. The right subphrenic tumor seemed to be located on the right diaphragm and not invasive into the liver (arrowheads) by magnetic resonance imaging with gadolinium ethoxybenzyl-L-diethylenetriamine pentaacetic acid.

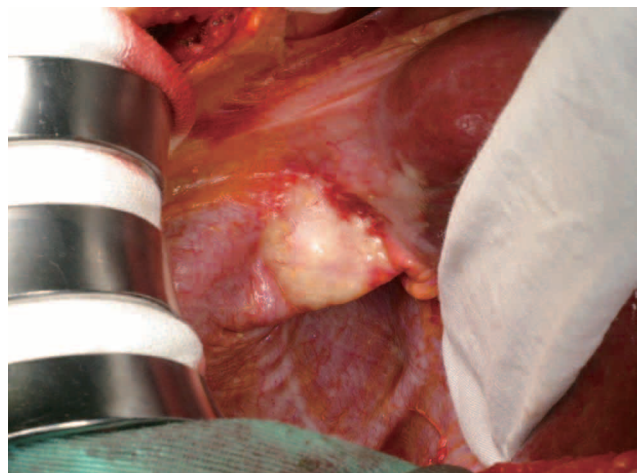


Figure 3. The white hard tumor was located at the right subphrenic fossa close to the inferior vena cava and right hepatic vein.

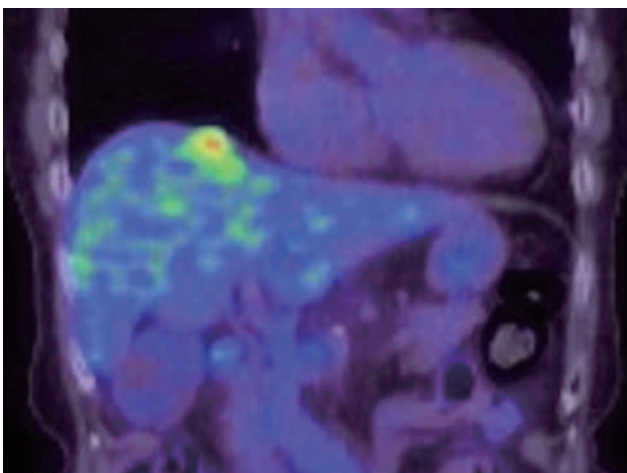


Figure 2. 18F-fluorodeoxyglucose position emission tomography showed fluorodeoxyglucose accumulation in the tumor.

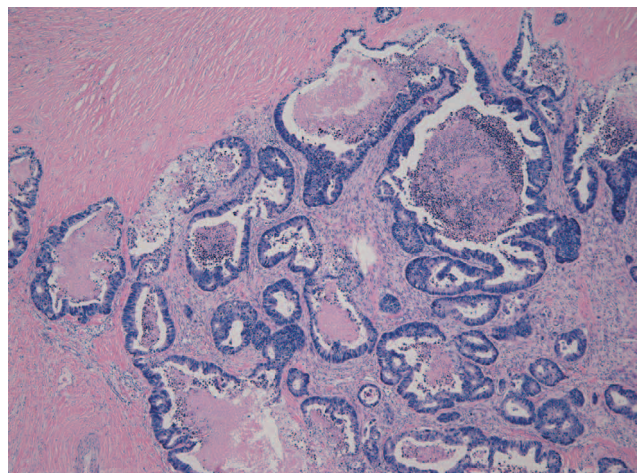


Figure 4. Pathological examination revealed moderately differentiated tubular adenocarcinoma resembling the pathology of the previous cecal cancer, which seemed to be disseminated metastasis in the pathological features (hematoxylin and eosin stain; $\times 40$).

Peritoneal disseminated metastasis of colon cancer generally occurs at the caudal end of the greater omentum including mesentery, bilateral paracolic gutter and rectovesical pouch (10). A recent study reported that 14.1 % of pathologic T4 colon cancer developed metachronous peritoneal metastasis (11); therefore, in the present case, metachronous peritoneal metastasis is not unnatural in itself. As it is, solitary distant peritoneal metastasis of colon cancer cephalad beyond the greater omentum similar to the present case has not been reported previously. This pattern of metachronous peritoneal metastasis is unnatural in colon cancer. In laparoscopic colorectal resection for right-sided colon cancer, assistant surgeons sometimes grasp the colon near the tumor using laparoscopic instruments, injure the tumor, touch the right diaphragm, and seed cancer cells incidentally. We do not have the information about the condition of primary operation by a primary doctor, and we could not find conclusive evidence of incidental injury; however, we assumed that it is possible to be the cause of solitary metachronous peritoneal metastasis in the present case. Few reports are available on the mechanism of procedural seeding, and no studies support our hypothesis; therefore, we are planning the prospective study of free cancer cells disseminated in laparoscopic colectomy for colon cancer.

CONCLUSIONS

We experienced a case of solitary distant peritoneal metastasis of cecal cancer after laparoscopic colectomy, which seemed to be caused by surgical procedures. The present case suggests the importance of paying close attention to procedures during laparoscopic colorectal resection to prevent peritoneal seeding.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

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